

AMENDMENTS TO THE CLAIMS

1 - 34 (cancelled).

35 (original). A method of encoding chemical taggants using multiple pairs of chemicals to represent the bits of a binary serial number wherein the presence of one chemical of each pair represents a first predetermined bit value and the presence of the other chemical of each pair represents a second predetermined bit value.

36 (original). The method of claim 35 where one of the predetermined bit values is 0 and the other predetermined bit value is 1.

37 (original). A method of encoding chemical taggants comprising:  
identifying a group of  $M \times N$  distinct chemical taggants where  $M$  and  $N$  are integers; and  
dividing said chemical taggants into  $M$  groups of  $N$  chemicals each; and  
assigning one taggant chemical from each of the  $M$  groups to correspond to each integer from 0 to  $N-1$  inclusive; and  
isolating the substance to be tagged and assigning to it an  $M$ -digit, base- $N$  serial number;  
and  
adding to the substance to be tagged a quantity of each of the  $M$  chemicals corresponding to the values of the  $M$  digits in the assigned serial number.

38 - 41 (cancelled).

42 (original). A binary taggant comprising:  
at least a first chemical pair comprising:  
a first chemical of the first chemical pair capable of functioning as a taggant and representative of the first of two binary values; and  
a second chemical of the first chemical pair capable of functioning as a taggant and representative of the second of the two binary values.

43 (original). The binary taggant of claim 42 further comprising:  
a second chemical pair comprising:  
a first chemical of the second chemical pair capable of functioning as a taggant and representative of the first of two binary values; and  
a second chemical of the second chemical pair capable of functioning as a taggant and representative of the second of the two binary values.

44 (original). The binary taggant of claim 42 further comprising:  
at least two additional chemical pairs each of said pairs comprising:  
a first chemical of each additional chemical pair capable of functioning as a taggant and representative of the first of two binary values; and  
a second chemical of each additional chemical pair capable of functioning as a taggant and representative of the second of the two binary values.

45 - 47 (cancelled).

48 (original). An encoded taggant system capable of representing any M-digit, base-N serial number where M and N are integers, comprising:

M x N distinct chemicals each capable of functioning as a taggant;

said M x N distinct chemicals grouped into M groups of N distinct chemicals in each of the M groups; and

each of the N distinct chemical in each of the M groups corresponding to one integer from 0 to N-1 inclusive,

whereby a quantity of the distinct chemicals corresponding to the values of a predetermined, M-digit, base-N serial number may be selected and added to a substance assigned to the predetermined serial number.

49 (original). The taggant system of claim 48 wherein at least one of the taggant chemicals is isotopically substituted.

50 (original). A method of ensuring the authenticity of an identification taggant comprising:

selecting a first taggant representative of identification information;

selecting a second taggant representative of an authentication code; and

combining the first and second taggants to form an authenticated taggant.

51 (original). The method of claim 50 wherein the first taggant is selected from the group consisting essentially of particulate, chemical, or isotopic taggants and

the second taggant is selected from the group consisting essentially of another one of either particulate, chemical or isotopic taggants.

52 - 53 (cancelled).

54 (original). A taggant composition comprising:  
a first taggant encoding identifying information; and a second taggant encoding an authentication code.

55 (original). The taggant composition of claim 54 where the first taggant is selected from the group consisting essentially of particulate, chemical, or isotopic taggants, and the second taggant is selected from the group consisting essentially of another one of either particulate, chemical or isotopic taggants.